

REMARKS

In order to comply with the requirements of 37 C.F.R. § 1.173c, applicants identify examples of support in the specification for each of the new claims presented in this divisional application in the table below. The examples provided below comprise only some examples of support in the specification for the new claims, and the provision of examples below should not be understood to limit the claims to those examples.

Claim	Claim Limitation	Specification Support
9	maintaining a database of disk space quotas and disk space utilization data	“Quota limits on disk space taken up by files in the file system are established . . . and an internal database is established to track quotas against actual disk space utilization” Col. 2, lines 7-10. “The invention keeps a persistent database of the established quotas and the amount of disk space used.” Col. 2, lines 35-36.
	intercepting an I/O request before it reaches a file system driver	“The first step in this logic is to intercept file system I/O requests before they reach the file system driver.” Col. 2, lines 17-18.
	determining whether any disk space quota would be exceeded by completion of the I/O request	“Then the driver determines . . . whether any quota would be exceeded by the completion of the I/O request.” Col. 2, lines 18-21.
	blocking completion of the I/O request if any disk space quota would be exceeded by completion of the I/O request	“If a quota would be exceeded, completion of the I/O request is blocked” Col. 2, lines 21-23
	allowing the I/O request to complete and updating the disk space utilization data to reflect completion if a disk space quota would not be exceeded	If a quota would not be exceeded, the I/O request is allowed to complete and the driver’s internal database is updated with revised disk space utilization data.” Col. 2, lines 23-25.
10	issuing an error message if a disk space quota would be exceeded by completion of the I/O request.	If a quota would be exceeded, completion of the I/O request is blocked “and an error status is issued” Col. 2, lines 21-23

Claim	Claim Limitation	Specification Support
11	serializing I/O requests	<p>“In order to accurately detect changes in file size, operations which might affect allocation must be serialized. In order to effect serialization, it is necessary to synchronize the operations which are related. In Windows NT, this can be accomplished through the use of a kernel event, which is one of the synchronization objects made available by the operating system. A kernel event is associated with each open file. A kernel event is in one of two states, signaled or non-signaled. Multiple processes can have a handle to a kernel event. When an operation which might affect file size is detected, the event for the file is cleared by QaFilter, i.e. reset to the non-signaled or locked state. While the event is locked, other operations on the file are blocked, waiting for the event to be signaled. The event is signaled in the post-processing routing for the operation which cleared the event, effectively serializing operations.” Col. 4, line 65 to col. 5, line 14.</p>
12	wherein the step of serializing I/O requests includes the step of locking a synchronizing object for the file when an I/O request for that file is detected	<p>When an operation which might affect file size is detected, the event for the file is cleared by QaFilter, i.e. reset to the non-signaled or locked state. Col. 5, lines 8-10; see also original claim 3 of the ‘066 application.</p>
13	wherein the synchronizing object is a kernel event	<p>“In Windows NT, this can be accomplished through the use of a kernel event, which is one of the synchronization objects made available by the operating system.” Col. 5, lines 2-5; see also original claim 4 of the ‘066 application.</p>

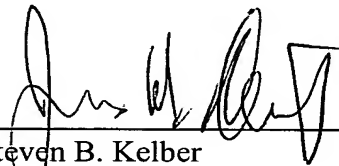
Claim	Claim Limitation	Specification Support
14	wherein the disk space quotas comprise at least one ownership quota and at least one directory quota, the ownership quota being a maximum quantity of disk space in use by files associated with a particular owner, the directory quota being a maximum quantity of disk space in use by files associated with a particular directory	“many quotas are based on file ownership” Col. 4, line 14. “Quotas may also be established for directories where files are stored.” Col. 2, lines 30-31. See also original claim 5 of the ‘066 application.
15	serializing access to the database.	“Additionally, QaFilter must serialize access to its internal data structures.” Col. 5, lines 16-17. See also original claim 6 of the ‘066 application.
16	wherein the serializing step is performed using a simple kernel mutex	“This is done through the use of a single kernel mutex” Col. 5, lines 17-18.
17	wherein paging I/O requests are ignored	“Paging I/O does not cause file allocation to change and is ignored.” Col. 5, lines 40-41. See also original claim 7 of the ‘066 application.
18	maintaining a database of disk space quotas	“The invention keeps a persistent database of the established quotas” Col. 2, lines 35-36.
	intercepting an I/O request before it reaches a file system driver;	“The first step in this logic is to intercept file system I/O requests before they reach the file system driver.” Col. 2, lines 17-18.
	determining whether any disk space quota would be exceeded by the completion of the I/O request	“Then the driver determines . . . whether any quota would be exceeded by the completion of the I/O request.” Col. 2, lines 18-21.
	allowing the I/O request to complete only if a disk space quota would not be exceeded	“If a quota would not be exceeded, the I/O request is allowed to complete” Col. 2, lines 23-24.
19	issuing an error message if a disk space quota would be exceeded by completion of the I/O request	See claim 10 above.
20	serializing I/O requests	See claim 11 above.

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21	wherein the step of serializing I/O requests includes the step of locking a synchronizing object for the file when an I/O request for that file is detected	See claim 12 above.
22	wherein the synchronizing object is a kernel event	See claim 13 above.
23	maintaining disk space utilization data	"The invention keeps a persistent database of . . . the amount of disk space used." Col. 2, lines 35-36.
	updating the disk space utilization data to reflect completion of the I/O request	"The post processing routine examines the actual effect the operation had on disk space allocation for the file and updates the data structures for the file, both in memory and in the persistent database on the disk."

Applicants submit that the application is now in condition for examination on the merits. Early notification of such action is earnestly solicited. Should the Examiner have any suggestions to place the application in even better condition for allowance, Applicants request that the Examiner contact the undersigned representative at the telephone number listed below.

Respectfully submitted,

PIPER RUDNICK LLP

A handwritten signature in black ink, appearing to read 'S. Kelber', is written over a horizontal line.

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